# Injection Surveillance Committee Meeting

Santa Rosa, CA
September 30 and October 1, 2008

## RESUME

Members: Pat Abel (D3), Burt Ellison (D4), Glen Muggelberg (D5), Tim Kustic (D6), and Ali Khan (G3)

Ex-Official Member: Mike Stettner

Guests: Liz Johnson and Jack Truschel

**Opening Remarks –**

Opening remarks were given, including the concern regarding two absent district committee members. Although a quorum was present, not all districts were represented. ISC meetings should have a representative from each oil and gas district office, along with a geothermal representative.

ISC recommends that if the usual district committee member is not able to attend, the Deputy should choose a replacement to represent their office. This policy would ensure input from all districts and provide upward mobility/transition training for staff.

**RECOMMENDATION**

Each district office should appoint a member to the ISC. If the member is unable to attend an ISC meeting, an alternate, preferably an AOGE or EMRE, will be chosen by the District Deputy to attend the meeting.

**1. Definition of BFW & Proposed Cementing Regulations - Stettner**

Stettner outlined the need to change regulations so there is the intent in regulation for plugging the base of freshwater (BFW) to protect water quality. In areas where several freshwater sands exist separated by shales or brackish waters, multiple plugs may be necessary. In addition, the regulations do not ensure that better quality fresh water zones are protected from lesser quality fresh water zones.

A review of California Code of Regulation (CCR) 1723.2(c) Special Plugging Requirements does not ensure that individual freshwater zones are plugged off. The regulation is also not written to prevent upward migration and possible degradation of better quality waters.

CCR 1724.10(g) also lists exceptions, referencing the BFW without adequate definition provided in the laws or regulations. A clear definition of the BFW will allow for uniform compliance.

In addition, this section excludes the need for tubing and packer for steam wells and pipeline quality gas. In some fields, produced water, used as makeup fluid for steam generation, has high boron content. Tubing and packer should be required in this environment to adequately protect fresh waters. Also, pipeline quality gas is specific to gas storage projects. Gas used in pressure maintenance injection wells, in most cases, should not fall under a pipeline quality gas category, and would, therefore, be required to run tubing and packer.

**RECOMMENDATION**

1. The CCR should include a definition of freshwater and should indicate the need for multiple plugs where necessary to protect multiple freshwater zones.
2. Regulations should also be modified to require tubing and packer for steamflood wells injecting in fields with fresh water, unless an analysis of the fluid being injected would not degrade the fresh waters. Gas injection wells used for pressure maintenance should also be required to have tubing and packer as added mechanical protection.

**2. Federal $CO_2$ Rules and Comments – Stettner**

The concept of expanding DOGGR authority to include $CO_2$ sequestration has been accepted and Headquarters has submitted a legislative proposal and fiscal impact to Agency. The legislative proposal demonstrates the need for carbon sequestration regulations that would include the long-term storage of $CO_2$ from sources not integrally associated with oil and gas operations. The regulations that would be developed if DOGGR is given this authority would include, but is not limited to, all of the following:

1. Key components of site certification protocol, including seal characterization, reservoir capacity and fluid and gas dynamics, testing standards, and monitoring strategies.
2. Integrity and longevity standards for storage sites.
3. Mitigation, remediation, and indemnification strategies to manage long-term risks.
4. Long-term financial assurance.
5. Well and facility bonding.
6. Post closure requirements.

The proposal was accepted by the Department and is currently waiting a decision by the Agency. DOGGR would hope to have regulations in place by January 2010. AB 32 is a driving force for $CO_2$ sequestration regulations. The U.S. EPA is in the process of currently promulgating regulations and Stettner is working with IOGCC and GWPC in evaluating and commenting on the draft regulations that propose a new class of well (Class VI) and minimum technical criteria for geologic site characterization, fluid movement, AOR, well construction, etc.

The SPE Convention in San Jose (March 2009) will have a panel discussion on $CO_2$ sequestration.

### 3. Establishing Field Boundaries Based on UIC Wells – Ellison and Stettner

The issue was raised at the last ISC meeting to question whether a field boundary could be established based on the location of an injection well if the well is integrally associated with the field's oil and gas operations. ISC members concurred at this meeting that field boundaries should only delineate the productive limits of a field.

**RECOMMENDATION**

> Criterion to establish field boundaries should not be based on injection well locations. ISC members concurred at this meeting that field boundaries should only delineate the productive limits of a field.

### 4. MOI §170.4 Changes– Ellison and Stettner

The federal UIC regulations provide the State Oil and Gas Supervisor authority to define and describe an aquifer exemption based on a surface or subsurface expression as long as the description is clear and definite. When DOGGR accepted the federal primacy for Class II wells, aquifer exemptions were grandfathered to all injection zones defined as a USDW. The exemptions were based on the oil field boundary at the time (1983), which was current Division policy. DOGGR has to address the impacts to injection when modifying field boundaries. Boundary changes may trigger a request by DOGGR to EPA for a modification of the aquifer exemption to include the expanded area. Also, aquifer exemptions should not be constrained by a field boundary. Districts may petition to include a geographic area that goes beyond the productive limits of a field boundary.

An aquifer exemption application proposed by an operator must be submitted to a DOGGR District UIC engineer. Once the engineer deems the application is complete and is

comfortable that adequate protection of USDW is addressed, the application must be forwarded to the UIC Program Manager for submission to the EPA. Operators should not be advised to submit their application directly to the EPA. MOI § 170-4 B needs to reflect this procedure.

Questions were raised whether DOGGR has the authority to disapprove an exemption application on water quality alone, or whether we should simply advise Regional Water Quality Control Board (RWQCB) and EPA of DOGGR's position. Although there are no CCR regulations that DOGGR can point to approve or disapprove an exemption proposal based on water quality, members agreed that DOGGR has a responsibility to alert lead agencies of such potential concern and to exercise our right to protect USDW.

Bernard's equation can be used to decrease the area of influence when assessing risk for a proposed injection well. When analyzing an AOR, engineers need to assess the potential for degradation when cement used to cement casing or in plugs is mixed with a high percentage of gel.

**RECOMMENDATION**

1. Amend the MOI to clarify that an aquifer exemption is required for injection wells located outside a field boundary, even if the injection zone is part of an existing aquifer exemption located inside a field boundary.
2. That all districts review their aquifer exemptions to determine whether an exemption could be defined by some geographic or geometric term rather than by a field boundary.

**ACTION ITEM**

1. Update MOI § 170.4 C. Kustic will develop a section for inclusion in MOI §170 addressing impacts from field boundary changes on injection approval.
2. Replace text on radial flow equation under MOI § 170.4 C with revised calculation shown currently in Exhibit 170.4 – Item 12. Ellison will provide Stettner with corrected equation for Bernard's Equation.
3. Stettner will also establish a definition of a public water system for inclusion in the MOI §170.
4. Determine whether PERC provides a recommendation on the amount of allowable gel in cement that would provide an adequate seal.

## 5. General discussion

Reviewed status of proposed H2S regulations. Once regulations are adopted additions to MOI will be warranted.

Districts 3 & 4 are observing oil at the surface as a result of approved cyclic steaming projects. The oil seeps are associated with steaming to the diatomite zones. If operators are injecting over fracture gradient, DOGGR approval is needed.

### ACTION ITEM

Abel, Ellison, & Winkler to propose regulations on well safety devices, and testing requirements for gas injection wells. Due by January 1, 2009.

## 6. MOI § 170.7 Project Maintenance & Confidentiality – Kustic

The following changes underlined & italicized or strikeouts were proposed an approved by ISC:

170.7 PROJECT MAINTENANCE AND CONFIDENTIALITY

A project folder containing all materials received from the operator must be maintained in the district office and, for geothermal projects, in both the geothermal district office and headquarters office. Materials, such as non-confidential correspondence, notices, well surveys, fluid analyses, etc., that would be open to public inspection if stored outside of the project folder, should not be considered confidential merely because they are contained within an injection project file.

Materials in an injection-project file that may be considered confidential includ~~ed~~: 1) interpretive and experimental data filed by the operator *and justified to the satisfaction of the Supervisor that the data should be treated as "confidential" (see Notice to Operators dated 1/18/08)*, and 2) any portion of the records of confidential wells found within the project file. (See Section 105 for additional information concerning confidentiality.)

The *confidential status of interpretive and experimental data should be reviewed after five (5) years and, if warranted, released from confidential status pursuant to CCR 1997.4.*

*Confidential data within project files should be readily identified and labeled with the proposed confidential status release date.*

If a member of the public wishes to see non-confidential materials in an injection-project file, those materials should be made available to that person in a timely manner.

As an aid in identifying the type of project, and to facilitate the proper filing of material relating to projects, the following reference should be put on all correspondence:

Type of Project. (Be consistent in identifying the project on subsequent P-reports.)

Field

Area or Fault Block

Zone or Pool (Do not use generalized description, such as Miocene and Monterey. Be more specific and give local name, if applicable).

When reporting a chemical analysis of zone water or injection fluid, use milligrams-per-liter (mg/1) as the unit. Generally, reports of water analysis submitted by operators are given in ppm or milligrams per liter (see Exhibit 170.7, Water Analysis).

170.7.2 should read Rescinding *Approval* for Injection Projects ~~or Wells~~, and the last paragraph in current section should be changed to 170.7.3 *Rescinding Approval for Wells.* The wells section should also include failure to respond to annual project information requests.

**ACTION ITEM**

Stettner to make corrections to MOI § 170.7 as listed above and rout corrections for approval.

**7. MOI § 170.8 – 170.12 Notices & Reports, Water Source Wells, Observation Wells, & ISC Committee –**

MOI § 170.8 E. ….*Operators submitting c*~~C~~omputerized ~~operators report this~~ information ~~on magnetic tape or diskette~~ *must have report format acceptable to DOGGR.*

MOI § 170.9 Not all water source wells have API numbers allocated, however API numbers may be necessary now to locate wells on Division maps starting January 2009.

MOI § 170.11 Operators of observation wells are not required to submit an annual summary specifying the use of each observation well, and are not required to conduct a fluid-level survey annually. DOGGR requires that observation wells be tested and data submitted to DOGGR once every three years in order to maintain observation well status.

MOI § 170.12 Minor changes to abbreviate committee name (ISC). The format for minutes need not be typed double-spaced for submission to UIC Program Manager. The minutes, once complete and approved, should be retained on the shared drive, as well as forwarded to the ISC members.

**ACTION ITEM**

Stettner to investigate if water source wells need API numbers to be captured by the new mapping system. Stettner to make corrections to MOI §170.8,9 & 12 as listed above and rout corrections for approval.

Abel to make changes to MOI §170.11 A & B, and submit to Stettner for routing.

**8. MOI §170.13 Project Surveillance & Frequency and Required Components of a Water Analysis –Abel**

Division policy is to utilize standardized forms. In an effort to standardize UIC operations between districts, the project questionnaire forms should standardized also. The form should be user-friendly and be sent and received via email.

CCR §1724.10 states: "*A chemical analysis of the liquid being injected shall be made and filed with the division whenever the source of injection liquid is changed, or as requested by the supervisor."* To conform with regulations, ISC will adopt this policy.

MOI §170.13.2.1(B) Districts attempt to witness as many surveys as staff can handle, which are then issued a T-report. Some districts are generating T-reports even if they review the hardcopy survey in the office. Given time constraints and workload issues, ISC members felt this was an unnecessary procedure.

**RECOMMENDATION**

1. DOGGR policy should conform with CCR requirements, i.e., require a fluid analysis of the injectate prior to initial injection and only when the fluid stream changes.
2. T-reports should only be generated for tests witnessed in the field.

**ACTION ITEM**

Each ISC member should bring a copy of the form being used to conduct project review/meetings and suggested changes or modifications to the next ISC meeting, spring 2009.

**9. MOI §170.14 SAPT Policy and Procedures –**

The testing procedures outlined in the MOI are in line with other states testing requirements. Stettner conferred with George Robin at the Mid-Year meeting and established that casing pressure testing at 200 psig is a sufficient testing pressure for a SAPT.

Districts should also ensure operators are conducting SAPT's if the packer has been reset in a well.

**RECOMMENDATION**

Adopt the attached Notice to Operators (see attached).

**10. MOI §170.15 - 170.16 Significant Leak or Significant Non-Compliance (SNC) –**

The process is fairly straight forward in the MOI with the exception that DOGGR should notify RWQCB if there is a potential SNC. This would modify procedures listed in MOI § 170.16.3(D)(~~5.~~*1*) to include notification to both UIC Project Manager and RWQCB.
170.16.3(D)(~~6.~~*2.*)…unless directed otherwise by the RWQCB.
170.16.3(D)(~~7.~~*3.*) If the operator fails to repair the well within 60 days, the District Deputy ~~rescinds the permit by~~ issu~~ing~~*es* a letter rescinding the individual *approval* ~~well permit~~ and order~~sing~~ the operator to : ~~(1) shut-in the well immediately ( if the well is still active); (2)~~ *(1)* disconnect the injection line at the wellhead within 10 days; and ~~(3)~~*(2)* notify the appropriate distict office when the injection line has been disconnected *so it may be verified by a field inspection.*
170.16.3(D)(~~9.~~*5)* Delete entire section

**ACTION ITEM**

Stettner to make corrections to MOI 170.16 as listed above and rout corrections for approval.

**11. Misc –**

Ellison presented a new project using new technology that is being proposed for the White Wolf Preserve. The project, still in the permitting phase, is confidential. Project approval requirements were discussed.

Muggelberg discussed the acquisition of defunct injection projects by multiple operators. ISC members agreed that twinning the project approval letters and information is acceptable procedure.

A U.S. EPA grant is available to build a EPA 7520 module and to facilitate transfer of the injection report into the National Database System.

ACTION ITEM

Kustic & Stettner will discuss the issue with EPA and the Department's OTS office.

Note:

MOI changes to be submitted to Jim Campion with regular route slip. MOI changes need to be adopted and updated real time.

**Carryover Item – Project Completion by 2009 Spring ISC Meeting**

**RECOMMENDATION**

Fields, Ellison and M. Habel develop a new section of the MOI to address the determination and self-certification of Class II disposal fluids as nonhazardous. It should include how and when testing would be conducted and DOGGR's authority to require more than self-certification. Their recommendations will be submitted to ISC for review.

Recorder: Pat Abel